



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 7268/1
Permit Holder:	Commissioner of Main Roads Western Australia
Duration of Permit:	24 December 2016 to 24 December 2031

The Permit Holder is authorised to clear native vegetation subject to the following conditions of this Permit.

PART I – CLEARING AUTHORISED

1. Purpose for which clearing may be done

Clearing for the purpose of material extraction for road maintenance.

2. Land on which clearing is to be done

Lot 148 on Deposited Plan 238472, Meekatharra
Lot 151 on Deposited Plan 220519, Meekatharra
Crown Reserve 20387 (PIN 713772), Meekatharra
Goldfields Highway road reserve (PINs 11725138 and 11725139), Meekatharra

3. Area of Clearing

The Permit Holder must not clear more than 212.68 hectares of native vegetation within the combined areas hatched yellow on attached Plan 7268/1a, Plan 7268/1b and Plan 7268/1c.

4. Application

This Permit allows the Permit Holder to authorise persons, including employees, contractors and agents of the Permit Holder, to clear native vegetation for the purposes of this Permit subject to compliance with the conditions of this Permit and approval from the Permit Holder.

5. Period in which clearing is authorised

The Permit Holder shall not clear any native vegetation after 24 December 2026.

6. Type of clearing authorised

This Permit authorises the Permit Holder to clear native vegetation for the project activities described in condition 1 of this Permit to the extent that the Permit Holder has the power to carry out works involving clearing for those *project activities* under the *Main Roads Act 1930* or any other written law.

PART II – MANAGEMENT CONDITIONS

7. Avoid, minimise etc clearing

In determining the amount of native vegetation to be cleared authorised under this Permit, the Permit Holder must have regard to the following principles, set out in order of preference:

- avoid the clearing of native vegetation;
- minimise the amount of native vegetation to be cleared; and
- reduce the impact of clearing on any environmental value.

8. Weed control

When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the introduction and spread of *weeds*:

- (a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- (b) ensure that no *weed-affected soil, mulch, fill* or other material is brought into the area to be cleared; and
- (c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

9. Vegetation management

- (a) Where practicable the Permit Holder shall avoid clearing riparian vegetation.
- (b) Where a watercourse or wetland is to be impacted by clearing, the Permit Holder shall maintain the existing surface flow by use of culverts.

10. Fauna Management

The Permit Holder shall not clear 'Mixed Low Shrublands on Calcareous breakaways' as identified in GHD's Goldfields Highway Material Sources SLK 748 to 781 Biological Survey, March 2016.

11. Retain vegetative material and topsoil, revegetation and rehabilitation

The Permit Holder shall:

- (a) retain the vegetative material and topsoil removed by clearing authorised under this Permit and stockpile the vegetative material and topsoil in an area that has already been cleared.
- (b) within 3 months following completion of extraction operations in any area cleared under this Permit, *revegetate* and *rehabilitate* the area(s) by:
 - (i) re-shaping the surface of the land so that it is consistent with the surrounding 5 metres of uncleared land; and
 - (ii) ripping the pit floor and contour batters within the extraction site; and
 - (iii) laying the vegetative material and topsoil retained under condition 11(a) on the cleared area(s).
- (c) within 24 months of laying the vegetative material and topsoil on the cleared area(s) in accordance with condition 11(b) of this Permit:
 - (i) engage an *environmental specialist* to determine the species composition, structure and density of the area *revegetated* and *rehabilitated*; and
 - (ii) where, in the opinion of an *environmental specialist*, the composition structure and density determined under condition 11(c)(i) of this Permit will not result in a similar species composition, structure and density to that of pre-clearing vegetation types in that area, *revegetate* the area by deliberately *planting* and/or *direct seeding* native vegetation that will result in a similar species composition, structure and density of native vegetation to pre-clearing vegetation types in that area and ensuring only *local provenance* seeds and propagating material are used.
- (d) Where additional *planting* or *direct seeding* of native vegetation is undertaken in accordance with condition 11(c)(ii) of this permit, the Permit Holder shall repeat condition 11(c)(i) and 11(c)(ii) within 24 months of undertaking the additional *planting* or *direct seeding* of native vegetation.
- (e) Where a determination by an *environmental specialist* that the composition, structure and density within areas *revegetated* and *rehabilitated* will result in a similar species composition, structure and density to that of pre-clearing vegetation types in that area, as determined in condition 11(c)(i) and (ii) of this permit, that determination shall be submitted for the CEO's consideration. If the CEO does not agree with the determination made under condition 11(c)(ii), the CEO may require the Permit Holder to undertake additional *planting* and *direct seeding* in accordance with the requirements under condition 11(c)(ii).

PART III - RECORD KEEPING AND REPORTING

12. Records to be kept

The Permit Holder must maintain the following records for activities done pursuant to this Permit:

- (a) In relation to the clearing of native vegetation authorised under this Permit:
 - (i) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
 - (ii) the date that the area was cleared; and
 - (iii) the size of the area cleared (in hectares).
- (b) In relation to the *revegetation* and *rehabilitation* of areas pursuant to condition 11 of this Permit:
 - (i) the location of any areas *revegetated* and *rehabilitated*, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
 - (ii) a description of the *revegetation* and *rehabilitation* activities undertaken;
 - (iii) the dates of the *revegetation* and *rehabilitation* activities undertaken;
 - (iv) the size of the area *revegetated* and *rehabilitated* (in hectares);
 - (v) the species composition, structure and density of *revegetation* and *rehabilitation*; and
 - (vi) a copy of the environmental specialist's report.

13. Reporting

- (a) The Permit Holder must provide to the CEO on or before 30 June of each year, a written report:
 - (i) of records required under condition 12 of this Permit; and
 - (ii) concerning activities done by the Permit Holder under this Permit between 1 January to 31 December of the preceding calendar year.
- (b) If no clearing authorised under this Permit was undertaken between 1 January to 31 December of the preceding calendar year, a written report confirming that no clearing under this permit has been carried out, must be provided to the CEO on or before 30 June of each year.
- (c) Prior to 24 September 2031, the Permit Holder must provide to the CEO a written report of records required under condition 12 of this Permit where these records have not already been provided under condition 13(a) of this Permit.

DEFINITIONS

The following meanings are given to terms used in this Permit:

direct seeding means a method of re-establishing vegetation through the establishment of a seed bed and the introduction of seeds of the desired plant species;

environmental specialist: means a person who holds a tertiary qualification in environmental science or equivalent, and has experience relevant to the type of environmental advice that an environmental specialist is required to provide under this Permit, or who is approved by the CEO as a suitable environmental specialist;

fill means material used to increase the ground level, or fill a hollow;

local provenance means native vegetation seeds and propagating material from natural sources within 100 kilometres and the same Interim Biogeographic Regionalisation for Australia (IBRA) subregion of the area cleared;

mulch means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation;

planting means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species;

regenerate/ed/ion means re-establishment of vegetation from in situ seed banks and propagating material (such as lignotubers, bulbs, rhizomes) contained either within the topsoil or seed-bearing *mulch*;

rehabilitate/ed/ion means actively managing an area containing native vegetation in order to improve the ecological function of that area;

revegetate/ed/ion means the re-establishment of a cover of *local provenance* native vegetation in an area using methods such as natural *regeneration*, *direct seeding* and/or *planting*, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area; and

weed/s means any plant -

- (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or
- (b) published in a Department of Parks and Wildlife Regional Weed Rankings Summary, regardless of ranking; or
- (c) not indigenous to the area concerned.

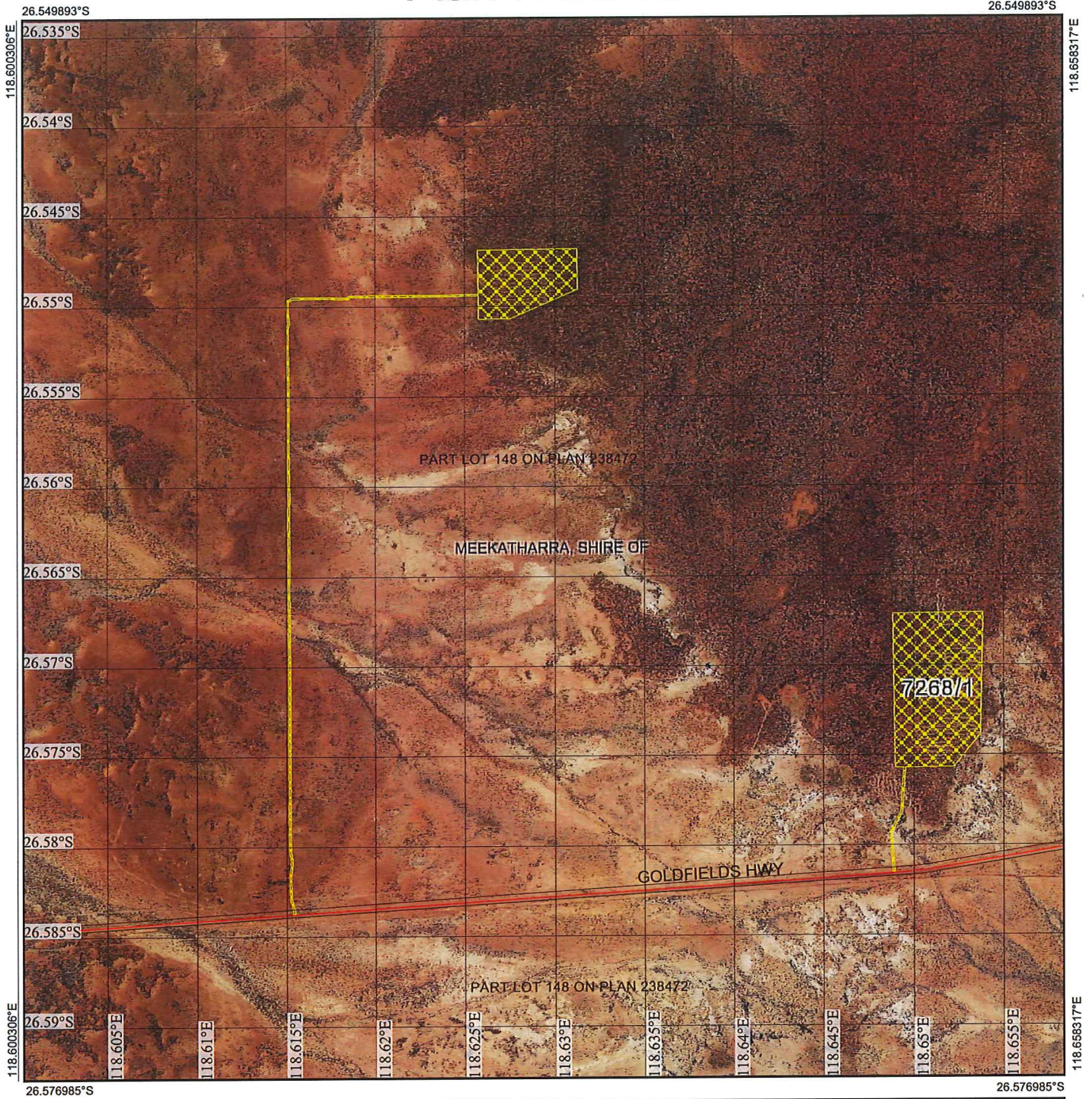


James Widenbar
MANAGER
CLEARING REGULATION

*Officer delegated under Section 20
of the Environmental Protection Act 1986*

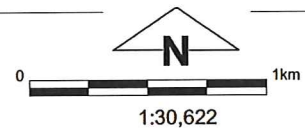
24 November 2016

Plan 7268/1a



Legend

-  Imagery
-  Clearing Instruments Activities
-  Local Government Authority



(Approximate when reproduced at A4)

GDA 94 (Lat/Long)

Geocentric Datum of Australia 1994

James Widenbar Date *24/11/16*

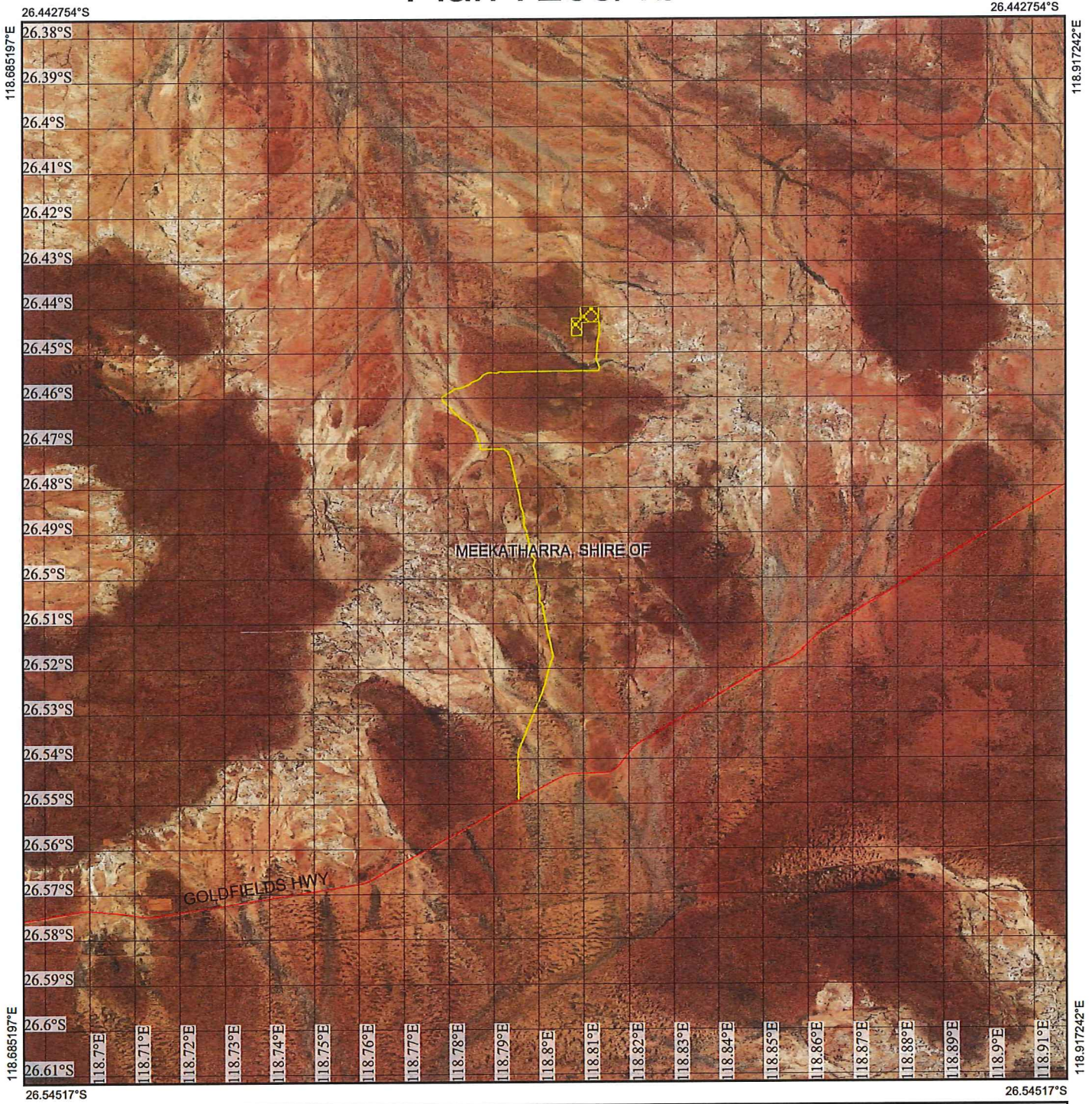
JAMES WIDENBAR

Officer with delegated authority under Section 20 of the Environmental Protection Act 1986





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Plan 7268/1b



Legend

-  Imagery
-  Clearing Instruments Activities
-  Local Government Authority



1:122,572

(Approximate when reproduced at A4)

GDA 94 (Lat/Long)

Geocentric Datum of Australia 1994

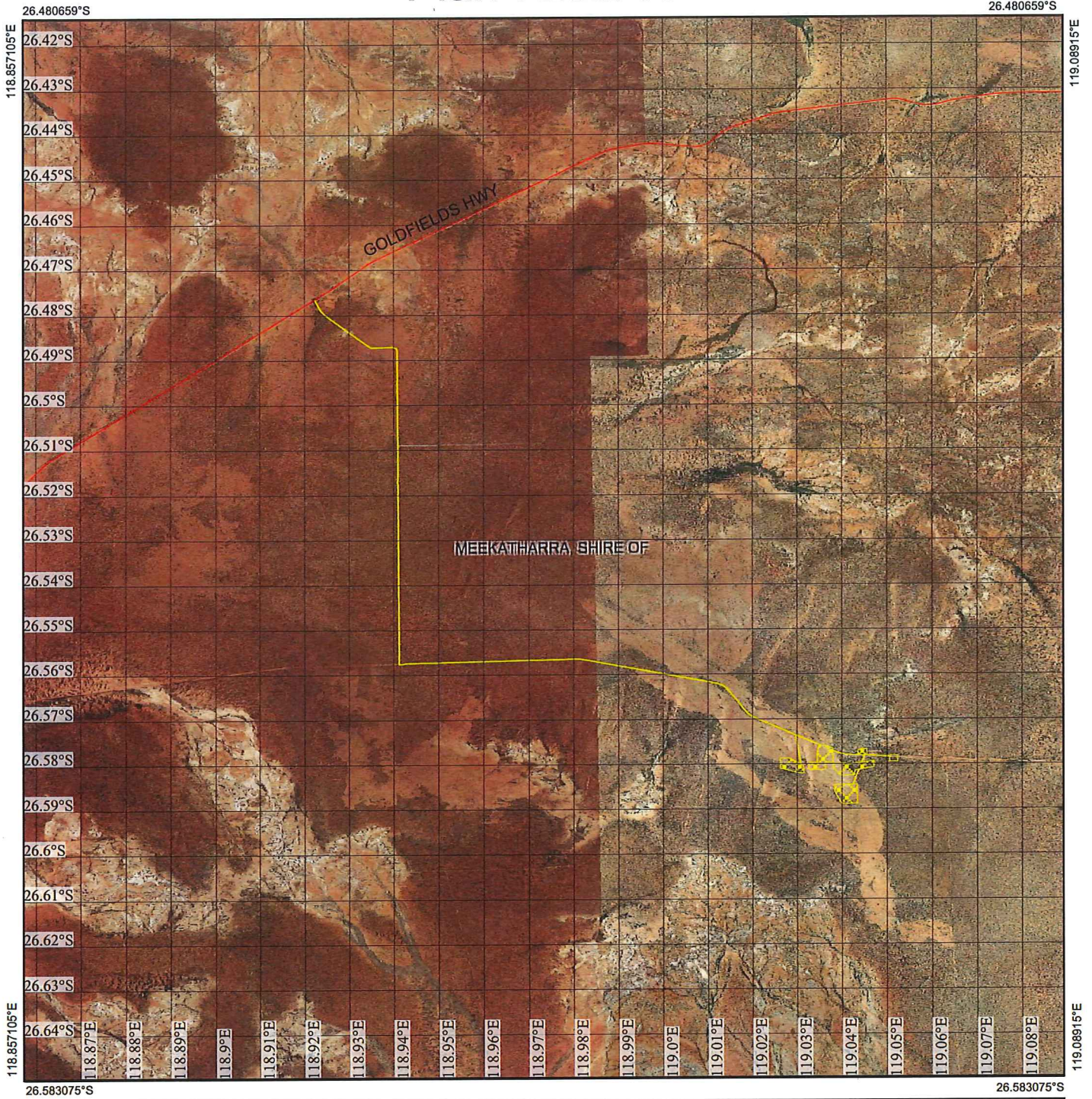
James Wisenbar Date *24/11/16*
JAMES WISENBAR

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Plan 7268/1c



Legend

-  Imagery
-  Clearing Instruments Activities
-  Local Government Authority



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GDA 94 (Lat/Long)

Geocentric Datum of Australia 1994

[Signature] Date *24/11/16*

SAMES WISENBERG

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1. Application details

1.1. Permit application details

Permit application No.: 7268/1
Permit type: Purpose Permit

1.2. Applicant details

Applicant's name: Commissioner of Main Roads Western Australia

1.3. Property details

Property: ROAD RESERVE - 11725139, MEEKATHARRA
ROAD RESERVE - 11725138, MEEKATHARRA
CROWN RESERVE 20387, MEEKATHARRA
LOT 151 ON PLAN 220519, MEEKATHARRA
LOT 148 ON PLAN 238472, MEEKATHARRA

Local Government Authority: MEEKATHARRA, SHIRE OF
DER Region: Midwest
DPaW District: GERALDTON
Localities: MEEKATHARRA

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
212.68		Mechanical Removal	Road construction or upgrades

1.5. Decision on application

Decision on Permit Application: Grant

Decision Date: 24 November 2016

Reasons for Decision: The clearing application, received on 8 September 2016, has been assessed against the clearing principles, planning instruments and other matters in accordance with s51O of the *Environmental Protection Act 1986*, and has concluded that the proposed clearing is at variance to principle (f), may be at variance to principles (a), (b) and (i), is not at variance to principle (e) and is not likely to be at variance to the remaining clearing principles.

Through assessment it has been determined that the clearing will include vegetation growing in association with minor, non-perennial watercourses. The Delegated Officer considers that a requirement to avoid riparian vegetation, where practicable, and maintain surface flows through the use of culverts will assist in ensuring that the watercourses are not significantly impacted.

Through assessment it has been determined that the application area contains 3.3 hectares of habitat for the long-tailed dunnart (*Sminthopsis longicaudata*). The Delegated Officer considers that a requirement to avoid areas mapped as 'Mixed Low Shrublands on Calcareous breakaways' that contain suitable habitat for the long-tailed dunnart will assist in minimising impacts to this species and its habitat.

Relevant State policies and other relevant policies have been taken into consideration in the decision to grant a clearing permit.

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
The application area has been mapped as the following Beard vegetation associations: 18: Low woodland; mulga (<i>Acacia aneura</i>). 107: Hummock grasslands, shrub steppe; mulga and <i>Eucalyptus kingsmillii</i>	The applicant proposes to clear 212.68 hectares of native vegetation within Lot 148 on Deposited Plan 238472, Lot 151 on Deposited Plan 220519, Crown Reserve 20387 and Goldfields Hwy road reserve (PINs 11725138 and 11725139), Meekatharra, for the purpose accessing materials for road maintenance.	Pristine; No obvious signs of disturbance (Keighery, 1994). To Completely Degraded; No longer intact, completely/almost completely without native species (Keighery, 1994).	GHD conducted a biological survey for the application area and recorded the following nine vegetation types: 1. Drainage lines – excellent (Keighery, 1994) condition. 2. Mixed woodlands/shrublands over tussock on stony soils – excellent to degraded (Keighery, 1994) condition.

over hard spinifex.

39: Shrublands; mulga scrub.

29: Sparse low woodland; mulga, discontinuous in scattered groups.

(Shepherd et al., 2001)

3. Mulga shrublands on stony soils - excellent to degraded (Keighery, 1994) condition.
4. Cleared/degraded – completely degraded (Keighery, 1994) condition.
5. Sand dune - excellent to degraded (Keighery, 1994) condition.
6. Mixed Acacia shrubland over tussock grassland on broad wash plains - excellent to degraded (Keighery, 1994) condition.
7. Mixed low shrublands on Calcareous breakaways - - pristine/excellent to degraded (Keighery, 1994) condition
8. Mixed mulga woodlands/shrublands over hummock/tussock grassland on plains – excellent to completely degraded (Keighery, 1994) condition.
9. Heath – excellent to completely degraded (Keighery, 1994) condition.

(GHD, 2016)

3. Assessment of application against clearing principles

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

Comments

Proposed clearing may be at variance to this Principle

The applicant proposes to clear 212.68 hectares of native vegetation within Lot 148 on Deposited Plan 238472, Lot 151 on Deposited Plan 220519, Crown Reserve 20387 and Goldfields Hwy road reserve (PINs 11725138 and 11725139), Meekatharra, for the purpose accessing materials for road maintenance. The proposed clearing includes 12 extraction pits and access roads. The applicant is developing a project to upgrade and seal the Goldfields Highway road reserve between Wiluna and Meekatharra. To facilitate the upgrade works additional road building material is required (GHD, 2016).

The application area ranges in condition from completely degraded to pristine (Keighery, 1994), with the majority of the area in excellent (Keighery, 1994) condition (GHD, 2016). The best condition vegetation was observed on breakaways and outcrops, where livestock could not access (GHD, 2016).

Eleven priority flora species have been recorded within the local area. A biological survey of the application area conducted by GHD did not identify any priority flora (GHD, 2016).

The priority one ecological community 'Killara calcrete groundwater assemblage types on Murchison palaeodrainage on Killara Station' has been recorded approximately 15 kilometres north of the application area. The biological survey did not identify any vegetation consistent with a priority ecological community (GHD, 2016).

The application area provides suitable habitat for long-tailed dunnart (*Sminthopsis longicaudata*), brush-tailed mulgara (*Dasyercus blythi*), good-legged lerista (*Lerista eupoda*), malleefowl (*Leipoa ocellata*) and rainbow bee-eater (*Merops ornatus*). No conservation significant fauna species were observed on site (GHD, 2016). Approximately 3.3 hectares of Mixed Low Shrublands on Calcareous breakaways was mapped within the application area and is likely to contain refuge for the long-tailed dunnart.

The application area contains areas of pristine condition (Keighery, 1994) condition vegetation and habitat for the long-tailed dunnart. Therefore, the proposed clearing may be at variance to this principle.

Methodology

References:
GHD (2016)
Keighery (1994)

GIS Database:
SAC Bio datasets – Accessed October 2016

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

Comments

Proposed clearing may be at variance to this Principle

One species listed as rare or likely to become extinct under the *Wildlife Conservation Act 1950* (WC Act) has been recorded within the local area (20 kilometre radius), being peregrine falcon (*Falco peregrine*). The long-tailed dunnart (*Sminthopsis longicaudata*) listed as priority 4 by the Department of Parks and Wildlife (Parks and Wildlife) has also been recorded within the local area (Parks and Wildlife, 2007-).

The biological survey identified four additional fauna species which may occur within the application area, being; brush-tailed mulgara (*Dasycercus blythi*, P4 (Parks and Wildlife)), good-legged lerista (*Lerista eupoda*, P1 (Parks and Wildlife)), malleefowl (*Leipoa ocellata*, rare or likely to become extinct (WC Act)) and rainbow bee-eater (*Merops ornatus*, Specially Protected (WC Act)) (GHD, 2016).

The peregrine falcon and rainbow bee-eater are wide ranging and highly mobile avian species, and given the presence of other extensively vegetated areas comprising suitable habitat for these species within the local area (20 kilometre radius), it is not likely that the application area provides significant habitat for these species.

The long-tailed dunnart is found in rocky scree and plateau areas, generally with little vegetation or of spinifex hummock grassland, shrubs, and open woodland (Burbidge *et al.*, 2008). Two areas of suitably rocky habitat for this species were recorded within application area. Suitable habitat is recorded over 3.3 hectares within two of the proposed extraction pits. The requirement to avoid these areas will help to ensure that habitat for this species is not impacted by the proposed clearing.

The brush-tailed mulgara occupies spinifex (*Triodia* spp.) grasslands, and burrows in flats between sand dunes. No evidence of this species was recorded during the field survey, however active burrows, old burrows, scats and tracks have been observed throughout spinifex dominated areas adjacent to the study area (GHD, 2014; GHD, 2016). It is likely that the proposed clearing area comprises suitable habitat for this species, however it is considered unlikely to be significant habitat given that evidence of the species was found in adjacent vegetation and not the application area and that the surrounding landscape is extensively vegetated and has undergone fewer historic disturbances than the application areas.

The good-legged lerista occurs in open mulga area on loamy soils in the arid southern interior of Western Australia between Meekatharra and Cue (Wilson and Swan, 2013; GHD, 2016). Potentially suitable breeding habitat was recorded within the application area, however the majority of the habitat was disturbed with evidence of dill lines throughout (GHD, 2016).

Malleefowl are found in semi-arid shrublands and low woodlands dominated by mallee eucalypts and acacias, and feed opportunistically on a variety of flora, fungi and invertebrates (Parks and Wildlife, 2015). Malleefowl often require sandy substrate and abundant leaf litter for breeding (Parks and Wildlife, 2015). During the field study one long unused malleefowl mound was observed on the northern boundary of one of the sites (GHD, 2016). No active malleefowl mounds were observed within the application area. Given this and that surrounding landscape is extensively vegetated and in a similar or better condition the proposed clearing is not likely to significantly impact this species.

Given the above, the proposed clearing may be at variance to this principle.

Methodology

References:
Burbidge *et al.* (2008)
GHD (2014)
GHD (2016)
Parks and Wildlife (2007-)
Parks and Wildlife (2015)
Wilson and Swan (2013)

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.

Comments

Proposed clearing is not likely to be at variance to this Principle

No rare flora has been recorded within the local area (20 kilometre radius).

A biological survey of the application area conducted by GHD did not identify any rare flora (GHD, 2016).

Given the above, the proposed clearing is not likely to be at variance to this principle.

Methodology

References:
GHD (2016)

GIS Database:
SAC Bio datasets – Accessed October 2016

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

Comments **Proposed clearing is not likely to be at variance to this Principle**
 No threatened ecological communities (TEC) have been recorded within the local area (20 kilometre radius).
 A biological survey of the application area conducted by GHD did not record any vegetation consistent with a TEC (GHD, 2016).
 Therefore, the application area is not likely to comprise of, or be necessary for the maintenance of a TEC.
 The proposed clearing is not likely to be at variance to this principle.

Methodology References:
 GHD (2016)
 GIS Database:
 SAC Bio datasets – Accessed October 2016

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

Comments **Proposed clearing is not at variance to this Principle**
 The area under application is located within the Murchison Interim Biogeographic Regionalisation of Australia (IBRA) bioregion. This IBRA bioregion has approximately 100 per cent of its pre-European vegetation extent remaining (Government of Western Australia, 2015).
 The application area has been mapped as Beard vegetation associations 18, 107, 39 and 29. All of these vegetation associations have 99 per cent or above of their pre-European extent remaining in the Murchison bioregion (Government of Western Australia, 2015).
 Aerial imagery indicates that the local area (20 kilometre radius) retains approximately 100 per cent vegetation.
 The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001).
 All the mapped vegetation types retain above the 30 per cent threshold level and therefore the application area is not located within a highly cleared area.
 The application area does not contain a high level of biodiversity. Therefore, the application area is not considered to be a significant remnant.
 The proposed clearing is not at variance to this principle.

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Extent in parks and Wildlife Managed Lands (%)
IBRA Bioregion*				
Murchison	28,295	28,044,823	100	8
Shire*				
Shire of Meekatharra	10,018,860	10,005,831	100	8
Beard Vegetation Association in Bioregion*				
18	12,403,172	12,863,525	100	5
107	2,792,383	2,790,992	100	12
39	1,148,400	1,138,065	99	4
29	2,956,382	2,955,695	100	3

Methodology References:
 Commonwealth of Australia (2001)
 Government of Western Australia (2015)*
 GIS Databases:
 Imagery
 Pre-European Vegetation

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Comments **Proposed clearing is at variance to this Principle**
Numerous minor, non-perennial watercourses intersect the application area. One riparian vegetation type was recorded within the application area, being Floodplain Woodland (GHD, 2016).

A review of aerial imagery indicates that the identified watercourses intersect the access roads and the north eastern corner of one of the proposed material pits.

The proposed clearing will involve the removal of vegetation growing in association within minor, non-perennial watercourses.

Therefore, the proposed clearing is at variance to this principle.

The requirement to avoid riparian vegetation, where practicable, and maintain surface flows through the use of culverts will help to ensure that impacts to the identified watercourses are not significant.

Methodology **References:**
GHD (2016)

GIS Databases:
Geomorphic Wetlands, Augusta to Walpole
Hydrography, linear
Hydrography, hierachy

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

Comments **Proposed clearing may be at variance to this Principle**
The soils within the application area have been mapped by Northcote et al. (1960-68) as:

Code	Description
Mz23	Extensive flat and gently sloping plains with a scatter of surface gravels. Chief soils are shallow acid red earths and shallow earthy loams often occurring in intimate microassociation. Red-brown hardpan occasionally outcrops and is normally present within a depth of 30 in.
My50	Broad plains with a scatter of surface gravels: chief soils are shallow neutral red earths and shallow earthy loams in intimate microassociation. They are underlain by a red-brown hardpan at depths of 6-30in.
Fa8	Partially dissected pediments with some low stony hills on fine-grained sedimentary rocks and basic dykes, frequently flanking areas of unit Fa8: hard alkaline red soils.
AB14	Upland sand plains with occasional dunes and minor inclusions of associated plains units: chief soils are red earthy sands with red sands and dunes.
BE2	Generally undulating terrain on granites with rocky granitic hills, bosses and tors, some breakaways, and a surface stone mantle: chief soils seem to be shallow earthy loams underlain by a red-brown hardpan.

The mean annual rainfall for Meekatharra is 300 millimetres, which predominately falls between January and May in associated with cyclonic events and isolated thunderstorms.

The application area is predominately hard red soils. These soils are susceptible to water erosion, especially in high rainfall events.

Given the nature of the mapped soils, the majority of the application area is not likely to be prone to land degradation though wind erosion. There is the potential for minor wind erosion to occur within the sandy areas under application, however the impact is unlikely to be appreciable.

Given the risk of water erosion, the proposed clearing may be at variance to this principle.

The requirement to revegetate temporarily cleared areas will ensure that the potential soil erosion impacts are minor and short term while the extraction takes place.

Methodology **References:**
Northcote et al. (1960-68)

References:
Annual Rainfall, Statewide
Soils, Statewide
Topography

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

Comments **Proposed clearing is not likely to be at variance to this Principle**
No conservation reserves have been recorded within the local area (20 kilometre radius).

An area of unallocated Crown land (former leasehold) which is proposed for conservation is located 22 kilometres west of the application area.

Given that the local area (20 kilometre radius) retains approximately 100 per cent vegetation the proposed clearing is not likely to sever any ecological linkages.

The proposed clearing is not likely to be at variance to this principle.

Methodology References:
GIS Databases:
Parks and Wildlife Tenure

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

Comments **Proposed clearing may be at variance to this Principle**
Numerous minor, non-perennial watercourses intersect the application area. A review of aerial imagery indicates that the identified watercourses intersect the access roads and the north eastern corner of one of the proposed material pits.

The proposed clearing on hard red earths within the vicinity of watercourses will increase the risk of water erosion leading to increased sedimentation of surface water.

Groundwater salinity mapped within the application is 1000-3000 milligrams per litre (measured as Total Dissolved Solids). This level of groundwater salinity is considered to be brackish to moderately saline. The proposed clearing of 212.68 hectares of native vegetation, over 12 sites, within an area containing approximately 100 per cent vegetation is not likely to increase groundwater salinity.

Given the above, the proposed clearing may be at variance to this principle.

The requirement to avoid riparian vegetation, where practicable, and revegetate temporarily cleared areas will assist to minimise impact to surface water quality.

Methodology GIS Databases:
Hydrography, linear
Hydrography, hierachy
Geomorphic Wetlands, Augusta to Walpole
Groundwater salinity

(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

Comments **Proposed clearing is not likely to be at variance to this Principle**
The annual rain fall in the vicinity of the application area is 300 millilitres and evapotranspiration is also 300 millilitres.

The application area is predominately hard red soils. Given the nature of the soils, localised water logging may occur after high rainfall events. However, the proposed clearing is not likely to cause, or exacerbate, the incidence or intensity of flooding.

The proposed clearing is not likely to be at variance to this principle.

Methodology GIS Databases:
Annual Rainfall, Statewide
Soils, Statewide

Planning instruments and other relevant matters.

Comments The area under application is located within the East Murchison Groundwater Area, which is an area proclaimed under the *Rights in Water and Irrigation Act 1914* (RIWI Act). The Department of Water (DoW) advise that Main Roads holds a current instrument under the RIWI Act, GWL81967, which authorises the taking of water from various bores for road construction purposes on the Goldfields Highway, Wiluna – Meekatharra section (DoW, 2016).

The application was advertised in *The West Australian* newspaper on 3 October 2016 by the Department of Environment Regulation inviting submissions from the public within a 21 day period. No submissions were received in relation to this application.

No Aboriginal Sites of Significance have been recorded within the application area.

Methodology GIS Databases:
Aboriginal Sites of Significance
RIWI, Groundwater Areas

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